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ACADEMIC SALON 2018 REPORT

KEYNOTE SPEAKERS,
DISCUSSIONS AND
COLLABORATIONS

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Introduction to the Huawei Academic Salon

The 2018 Huawei Academic Salon took place on 21 June in London and brought together more than 100 leading figures from the worlds of education, industry and policymaking.

The aim of the event was to consider how companies and academia can work together to address the challenges presented by the ways in which innovation is transforming business and society.

Huawei, a global leader in information and communications technology, invests at least 10 per cent of its annual revenue in research and development. To date, it has

spent more than \$60 billion (£45 billion) on this work, which involves collaborating with universities and other scientific research institutions around the world.

The salon featured a range of high-profile speakers, including Sam Gyimah, UK universities and science minister; Stephen Toope, vice-chancellor of the University of Cambridge and Chen Lifang, corporate senior vice-president and director of the board of Huawei technologies.

Chen Lifang, senior vice-president and board director, Huawei

"Huawei has grown from a 'nobody' into a 'somebody' in the communications industry. This is due to technological breakthroughs made in global basic research. We are a company that benefits from and pioneers basic research – that is why we have put so much effort into this area since our foundation. We think that innovation is a process of persistent investment to make breakthroughs.

Every year, we invest 10 per cent of our revenue back into research and development. In the past 10 years, we have invested \$60.4 billion in R&D. In our opinion, research is like a beacon, illuminating the way forward for you, me and the rest of the world. As the Chinese saying goes, victory is ensured when people pool their strength and wisdom."

Lord Browne of Madingley, chairman, Huawei UK

"For several years in European history, 'salons' were gatherings of leading thinkers designed to increase understanding, inspire new thinking and encourage constructive debate. They played a key role in developing many of the European Enlightenment's most important ideas. In that spirit, the Huawei Academic Salon is about exploring the ideas that will help transform the modern world... We have heard from people who have



Chen Lifang



Lord Browne of Madingley

come from a wide variety of backgrounds and organisations, but whether they are scientists, policymakers or academic leaders, each shares a common interest in the way in which engineering can solve modern challenges and make the world a better place to live. This idea underpins Huawei's ambition to build a better-connected world."



In our opinion, research is like a beacon, illuminating the way forward

Chen Lifang

Sam Gyimah, UK minister for universities and science

The UK needs to become a “magnet for talent” if it is to lead the world in innovation and technology, the UK’s minister for universities and science told delegates at the 2018 Huawei Academic Salon.

Sam Gyimah said it was pivotal that the UK became the “number one place” for collaboration if it was to remain at the forefront of international higher education and research.

“If the UK is to lead the world in innovation and technology, investment alone will not be enough – we need to be open to the world and, most importantly, to talent,” he said. “We need to be as open as possible to attract those [talented] people into our country.”

This was true for undergraduate students, postgraduates, researchers, and “the entrepreneurs and innovators of the future.” “Collaboration is the name of the game rather than competitiveness,” he added.

The minister said that shortly after he became universities minister in January, he had consulted one of his predecessors in the role, David Willetts.

“I said to [Lord Willetts] that I wanted to see the UK as a technology and innovation superpower. He chided me and said, ‘No, Sam, you want the UK to become the best place to collaborate with. That is essential to how business is done these days.’”

This openness to collaboration



The UK needs to be open to the world

Sam Gyimah

was the optimum way “to harness the best ideas and the spark of creative genius that drives invention and innovation”, Mr Gyimah added.

To this end, the minister said that one of his aims in government was to continue to build “diverse relationships” within the UK and overseas, which “includes innovation with companies like Huawei”.

“I welcome their huge commitment to investment and working with universities in the UK,” he concluded.

“It is exactly what we want to see, and is exactly the kind of platform that will enable some of the best ideas in communications and computer sciences to flourish here in the UK, not only for the benefit of our economy but also for the benefit of humankind.”

Stephen Toope, vice-chancellor, University of Cambridge

A “complex innovation ecosystem” is emerging and universities must adapt in order to ensure their role within it, according to the vice-chancellor of the University of Cambridge.

Stephen Toope told the 2018 Huawei Academic Salon that the traditional view – that innovation happens mostly within universities, government and industry – could soon be “obsolete”, and that the “locus of innovation is shifting”.

“Technology has become more diffuse...[and] collaboration becomes the key,” Professor Toope told delegates. “Universities, like industries, can no longer expect to be an exclusive source of innovation. Instead, we now need to be talking about our role in a complex innovation ecosystem.” Some of academia’s “traditional building blocks...may have to be rethought”, he continued.

“Think, for instance, about the peer review process, which reinforces the notion that there are distinguished individuals in a position to judge other people’s output. What happens to these experts in a world of open, and some would say more democratic, innovation?”

Professor Toope said that he remained confident about the role of universities in this new world, saying that he still believed “people need expertise to guide the process...of innovation”. “As academics, I think our key role may be in equipping



The locus of innovation is shifting

Stephen Toope

others to make sensible and ethical judgements,” he said. “It is up to us to nurture the innovation ecosystem so that it remains fit for purpose.”

Professor Toope also said that the UK government needed to review its visa and immigration policies for university staff and students, if efforts to boost research and innovation after the country left the European Union were to be successful.

“The UK must think about the message it is sending out to the rest of the world,” Professor Toope added. “Are we genuinely a global Britain, or are we protecting a notion of historical Britain that no longer exists?”

How is the fourth industrial revolution redefining human talent?

THE PANEL

John Gill, editor, *Times Higher Education* (moderator)

Anne-Marie Canning, director of social mobility and student success, King's College London

Nick Hillman, director, Higher Education Policy Institute

Stephen Muggleton, head, Computational Bioinformatics Laboratory, Imperial College London

Universities have a key role to play in ensuring that students are equipped with the transferable skills they need, according to the head of an influential UK think tank.

Nick Hillman, director of the Higher Education Policy Institute, said he was concerned that too much attention was paid to trying to predict what the world of work would look like in the future. "What we need to prepare people for is a world that we don't fully understand," he said.

"One of the things we know about every bit of innovation is that it ends up being used in ways that were not predicted when it was initially discovered."

Anne-Marie Canning, director of social mobility and student success at King's College London, said that, according to World Economic Forum predictions, there were three skills that were repeatedly seen as vital: problem solving, emotional



Universities provide an excellent grounding

Anne-Marie Canning

intelligence and creativity. "Universities in the UK provide an excellent grounding in those three things," she said.

Stephen Muggleton, head of Computational Bioinformatics Laboratory at Imperial College London, raised some of the ethical issues of the fourth industrial revolution.

"Data centres consume 10 per cent of the world's electricity, and that is expected to treble in the next decade," he said. "That's horrific from an ecological point of view...but it is also horrific from an engineering point of view, because engineering is about efficiency."

Professor Muggleton added that discussion about the ethical implications of technological development had, to date, been "too limited".

University of Surrey

The 5G Innovation Centre at the University of Surrey has brought together leading academic experts with industry collaborators – including Huawei – to work towards the development of a global 5G network that will change the way the world uses mobile technology.

"The institute is the largest academic research institute in the information and communications technology area, looking at all aspects of telecommunication systems," Rahim Tafazolli, director of the centre, told the Huawei Academic Salon.

He demonstrated the potential of his work by showing delegates how an ultra-high-definition video of an aeroplane taking off was able to be live streamed perfectly using technology developed by his team.

"We don't work for Huawei, we work with Huawei," Professor Tafazolli said. "Huawei researchers work hand in hand with our researchers. They work on the same problem and come up with solutions [and] publish joint papers...it is not one-sided."

University of Oxford

In 2014, Google acquired the British artificial intelligence company DeepMind. But how much did it pay – and did the deal represent good value for money?

This was the question that Huawei's acquisition team posed to Fu Xiaolan, director of the Technology and Management Centre for Development at the University of Oxford, three years ago. "I said there was no



We don't work for Huawei, we work with Huawei

Rahim Tafazolli

existing theory that can give a guide about the value of technology," she told delegates at the 2018 Huawei Academic Salon.

The conversation led to a collaboration that produced a tool designed to value new and emerging technologies by matching the characteristics of nearly 4,000 start-ups with market data and research citations.

Then they applied their model to the DeepMind acquisition. "Our valuation was between \$590 million and \$650 million [£447 million-£492 million]," she said. "We found out that Google paid \$640 million... so well within this narrow range."

The collaboration between Huawei and the centre was such a success that the tool is now used by Huawei, and the two organisations continue to work together on further research.

The economic impact of information and communication technology

When will the huge developments being made in artificial intelligence, automation and robotics result in significant leaps forward in terms of productivity? This was one of the issues discussed by Mirko Draca, senior research associate at the London School of Economics' Centre for Economic Performance, during a session on the economic impact of technology.

Dr Draca's collaborative research with Huawei has been investigating the impact that ICT has on the economy and society.

"We are not yet seeing evidence of a qualitatively new phase of automation, where automation is hitting the jobs of non-routine manual workers like truck drivers," he said, adding that because there tends to be a time lag for technology to be fully adopted, such a leap forward could occur in "about 10 to 15 years".

Management and leadership

David De Cremer has literally written the book on the leadership culture at Huawei. The KPMG professor of management studies at the University of Cambridge's Judge Business School is co-author of *Huawei: Leadership, Culture, and Connectivity*, which explores how the company grew into one of the world's largest telecommunications organisations. In a breakout session, Professor De Cremer



The thing Huawei values most is innovation

David De Cremer

discussed what universities might learn from Huawei's approach to leadership.

"The one thing that Huawei values the most is innovation," he said. "Leadership is there to make sense of things and provide vision, and also to make sure the focus is clear but in a way that is adaptable...in that kind of culture, people can grow."

The Huawei Innovation Research Programme

The Huawei Innovation Research Programme (HIRP) is the company's flagship funding initiative. It provides funding opportunities to universities and research institutes. Delegates at the academic salon had the opportunity to hear from members of the HIRP expert panel, who discussed the review process for applications to the programme, and the importance of investigating the different ways in which research organisations and Huawei can work together.

"Innovation comes as a result of invention by academia, mixed together with the commercial knowledge that Huawei can offer," said Derrick Nirmalan, director of research planning at the Huawei UK Research Centre.

"Universities provide the right environment for researchers to make important discoveries. They have the knowledge and know-how and, working with Huawei, we can put that to great use."

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